



**COLORADO**

**Hazardous Materials  
& Waste Management Division**

Department of Public Health & Environment

## How was the cleanup conducted at Rocky Flats?

Rocky Flats was investigated and remedies were selected in compliance with the Rocky Flats Cleanup Agreement (the agreement), signed by the Colorado Department of Public Health and Environment (CDPHE), the U.S. Environmental Protection Agency (EPA), and the U.S. Department of Energy (DOE) in 1996. The agreement prescribed an accelerated closure process based on applicable environmental regulations and close consultation among the agencies.

Surface soil action levels in the agreement were calculated using very conservative methodologies and based on a lifetime excess cancer risk of one in 100,000 for a wildlife refuge worker. By comparison, the normal lifetime cancer risk in the U.S. is approximately one in 3. When exceeded, these action levels triggered removal actions.

Plutonium was one of the primary contaminants of concern; its one in 100,000 carcinogenic risk was calculated to be equivalent to 116 picocuries (trillionths of a Curie) per gram of soil. After discussions with community officials, the regulatory agencies further reduced the action level for plutonium to 50 picocuries per gram of soil. Following remediation, residual plutonium concentrations in surface soil were below levels of regulatory concern.

Physical cleanup was completed in October 2005:

- 10-year, \$7 billion cleanup (largest environmental cleanup of a Superfund site at that time).
- Over 800 structures were decontaminated and demolished including five major plutonium facilities and two major uranium facilities.
- 421 areas potentially contaminated with hazardous substances were investigated; more than 360 environmental sites were remediated.
- Most building debris was disposed of at area landfills. More than 500,000 cubic meters of low-level radioactive waste was shipped to disposal sites in other states.

The remedy chosen in the Corrective Action Decision/Record of Decision (CAD/ROD), dated Sept. 29, 2006, conformed to state and federal environmental regulations. The final decision determined that the Peripheral Operable Unit portion of the site, now the wildlife refuge, was in a state that is protective of human health and the environment, where unrestricted and unlimited use can be allowed. EPA based its delisting of the Peripheral Operable Unit from the National Priorities List of Superfund sites on the determination by EPA and the state of Colorado “that all appropriate actions under CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act of 1980, or Superfund) have been implemented to protect human health, welfare and the environment and that no further response action by responsible



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parties is appropriate.” Delisting pertained to the surface media (soil, surface water, sediment) and subsurface media, including groundwater.

The final remedy in the CAD/ROD was based on a 23-volume Remedial Investigation/RCRA Facility Investigation Report (July 2006), including a comprehensive risk assessment that evaluated both human and ecological risks. The database of sample results used for this investigation contains approximately 6.9 million data records for all media (soil, groundwater, surface water, air). Approximately 1.3 million of those data records are from soil samples collected at 7,230 surface soil sampling locations and 12,250 subsurface soil sampling locations.

### Department of Energy’s Rocky Flats website

[http://www.lm.doe.gov/Rocky\\_Flats/Regulations.aspx](http://www.lm.doe.gov/Rocky_Flats/Regulations.aspx)

CAD/ROD and the Remedial Investigation/RCRA Facility Investigation Reports

